

## DEEP PENETRATION MAGNETOQUASISTATIC ARRAYS

## ABSTRACT OF THE DISCLOSURE

Magnetic field sensor probes are disclosed which comprise primary or drive  
5 windings having a plurality of current carrying segments. The relative magnitude and  
direction of current in each segment are adjusted so that the resulting interrogating  
magnetic field follows a desired spatial distribution. By changing the current in each  
segment, more than one spatial distribution for the magnetic field can be imposed within  
the same sensor footprint. Example envelopes for the current distributions approximate  
10 a sinusoid in Cartesian coordinates or a first-order Bessel function in polar coordinates.  
One or more sensing elements are used to determine the response of a test material to  
the magnetic field. These sense elements can be configured into linear or  
circumferential arrays.